WHAT IS CLAIMED IS

1. A wireless network receiver comprising:

a receiving queue for receiving protocol data units;

a computing unit electrically connected to the receiving queue for calculating an integrity check value of a service data unit from which the protocol data units are fragmented; and

a first memory for storing the integrity check value.

2. The wireless network receiver of Claim 1, wherein the first memory comprises:

a transmitter address field;

a key field for storing keys for the computing unit to calculate the integrity check value; and

a temporary check value field for storing the integrity check value.

3. The wireless network receiver of Claim 2, wherein the first memory further comprises a sequence number field and a fragment number field.

4. The wireless network receiver of Claim 1, wherein the first memory is a static RAM.

5. The wireless network receiver of Claim 1, further comprising a CPU for reassembling the protocol data units into the service data unit.

6. The wireless network receiver of Claim 1, further comprising a second memory for storing the protocol data units and a memory controller for controlling the data access of the second memory.

7. The wireless network receiver of Claim 6, wherein a descriptor is allocated to the protocol data units, and the descriptor

comprises:

a first field for recording information indicating whether the protocol data unit being received is the last one of the service data unit;

a second field for recording the integrity check status of the service data unit; and

a third field for recording information indicating if any error occurred during the receiving procedure.

8. The wireless network receiver of Claim 6, wherein the protocol data unit stored in the second memory further comprises a temporary check value field for storing a temporary check value calculated by the computing unit.

9. A method for checking the integrity of a service data unit by a wireless network receiver, the service data unit being transmitted to the wireless network receiver after a first integrity check value is calculated and fragmented into a plurality of protocol data units, the method comprising the steps of:

calculating a first temporary check value for protocol data units having been received;

storing the first temporary check value;

receiving a next protocol data unit;

calculating a second temporary check value for the next protocol data unit, wherein the second temporary check value uses the first temporary check value as an initial value;

setting the second temporary check value to be a second integrity check value for the service data unit in the wireless network receiver if all the protocol data units of the service data unit are received; and

determining the transmission of the protocol data units is correct if the first integrity check value is equal to the second integrity check value.

10. The method for checking the integrity of a service data unit by a wireless network receiver of Claim 9, wherein the service data unit is a MSDU (media access control service data unit, defined in IEEE 802.11), and the protocol data unit is a MPDU (media access control protocol data unit, defined in IEEE 802.11).

11. The method for checking the integrity of a service data unit by a wireless network receiver of Claim 9, further comprising a step of appending the temporary check value to the protocol data unit and storing in a second memory after the temporary check value of the protocol data unit is calculated.

12. The method for checking the integrity of a service data unit by a wireless network receiver of Claim 9, further comprising the steps of:

checking whether or not a sequence number of the protocol data unit being received is correct; and

performing an abnormal transmission checking process if the sequence number is not correct.

13. The method for checking the integrity of a service data unit by a wireless network receiver of Claim 12, further comprising the steps of:

checking whether or not a fragment number of the protocol data unit being received is correct if the sequence number is correct; and

terminating to check the integrity of the service data unit if the fragment number is not correct.

14. The method for checking the integrity of a service data unit by a wireless network receiver of Claim 12, wherein abnormal transmission checking process comprises the steps of:

checking whether or not a fragment number of the protocol data unit being received is zero if the sequence number of the protocol data unit is not correct; and

terminating to check the integrity of the service data unit if the fragment number is not zero.

15. The method for check the integrity of a service data unit by a wireless network receiver of Claim 9, further comprising a step of reassembling the plurality of the protocol data units into a service data unit if the second integrity check value is equal to the first integrity check value.